Claims:

1. A cell comprising:

a vessel capable of containing a vacuum or pressures greater than atmospheric;

an effective amount of a material for forming a gaseous transition catalyst for catalyzing the transition of a hydrogen atom to an energy state lower than n=1, where n is the energy state of an electron in said free hydrogen atom;

a source of hydrogen atoms in the gas phase;

means for forming said gaseous transition catalyst from said material; and

means for contacting said gaseous transition catalyst with said hydrogen atoms in said vessel under conditions whereby said hydrogen atoms undergo a transition to an energy state lower than n=1 and releases energy.

2. A cell according to claim 1, wherein said gaseous transition catalyst is adapted to absorb a multiple of about 27 eV from said hydrogen atom when said hydrogen atom undergoes said transition to a lower energy state.

3. A cell according to claim 1, wherein said gaseous transition catalyst is adapted to have a resonant absorption with the energy released by said hydrogen atom when said hydrogen atom undergoes said transition to a lower energy state.

4. A cell according to claim 1, wherein said source of hydrogen atoms comprises a hydrogen containing gas and means for disassociating said hydrogen containing gas.

5. A cell according to claim 4, wherein said source of hydrogen atoms comprises at least one of a hot filament and a hydrogen containing gas stream, a hot grid and a hydrogen containing gas stream, a tungsten capillary heated by electron bombardment to 1800-2000 K and a hydrogen gas containing stream, a hydride maintained under nonequilibrium conditions, and an inductively coupled plasma flow tube and a hydrogen gas containing stream.

6. A cell according to claim 1, wherein said source of hydrogen atoms comprises a hydrogen containing gas stream and a second catalyst for disassociating said hydrogen containing gas stream into free hydrogen atoms.

7. A cell according to claim 6, wherein said hydrogen disassociation catalyst comprises at least one element selected from the group of the transition elements, lanthanides, and activated charcoal.

8. A cell according to claim 1, further comprising means for absorbing energy from said hydrogen atom undergoing said transitions.

9. A cell according to claim 1, further comprising means for removing molecular

hydrogen having an energy state lower than n=1.

10. A cell according to claim 1, further comprising a boat or container for containing said material, and means for connecting said boat or container to said vessel.

11. A cell according to claim 10, wherein said boat or container further comprises means for heating said material contained therein.

12. A cell according to claim 1, wherein said gaseous transition catalyst is an ionic compound which is resistant to hydrogen reduction.

13. A cell according to claim 1, wherein said material is adapted to sublime, boil, or become volatile when heated.

14. A cell according to claim 1, wherein said material comprises a salt of rubidium or potassium.

15. A cell according to claim 1, wherein said material comprises a salt of rubidium which is selected from the group consisting of RbF, RbCl, RbBr, RbI, Rb_2S_2, RbOH, Rb_2SO_4, Rb_2CO_3, and R b_3PO_4.

16. The cell according to claim 1, wherein said material comprises a salt of potassium which is selected from the group consisting of KF, KCl, KBr, KI, K_2S_2, KOH, K_2SO_4, K_2CO_3, K_2PO_4, and K_2GeF_4.

17. The cell according to claim 1, wherein said material is adapted to provide a vapor pressure greater than 0 of a cation selected from the group consisting of (Rb^{+}), (Mo^{2+}), and (Ti^{2+}), when said material is heated.

18. The cell according to claim 1, wherein said material is adapted to provide a pair of cations having a vapor pressure greater than 0 when said material is heated, said pair of cations being selected from the group consisting of: (Sn^{4+}, Si^{4+}), (Pr^{3+}, Ca^{2+}), (Sr^{2+}, Cr^{2+}), (Cr^{3+}, Tb^{3+}), (Sb^{3+}, Co^{2+}), (Bi^{3+}, Ni^{2+}), (Pd^{2+}, In^{+}), (La^{3+}, Dy^{3+}), (La^{3+}, Ho^{3+}), (K^{+}, K^{+}), (V^{3+}, Pd^{2+}), (Lu^{3+}, Zn^{2+}), (As^{3+}, Ho^{3+}), (Mo^{5+}, Sn^{4+}), (Sb^{3+}, Cd^{2+}), (Ag^{2+}, Ag^{+}), (La^{3+}, Er^{3+}), (V^{4+}, B^{3+}), (Fe^{3+}, Ti^{3+}), (Co^{2+}, Ti^{+}), (Bi^{3+}, Zn^{2+}), (As^{3+}, Dy^{3+}), (Ho^{3+}, Mg^{2+}), (K^{+}, Rb^{+}), (Cr^{3+}, Pr^{3+}), (Sr^{2+}, Fe^{2+}), (Ni^{2+}, Cu^{+}), (Sr^{2+}, Mo^{2+}), (Y^{3+}, Zr^{4+}), (Cd^{2+}, Ba^{2+}), (Ho^{3+}, Pb^{2+}), (Pd^{2+}, Li^{+}), (Eu^{3+}, Mg^{2+}), (Er^{3+}, Mg^{2+}), (Bi^{4+}, Al^{3+}), (Ca^{2+}, Sm^{3+}), (V^{3+}, La^{3+}), (Gd^{3+}, Cr^{2+}), (Mn^{2+}, Ti^{+}), (Yb^{3+}, Fe^{2+}), Ni^{2+}, Ag^{+}), (Zn^{2+}, Yb^{2+}), (Se^{4+}, Sn^{4+}), (Sb^{3+}, Bi^{2+}), and (Eu^{3+}, Pb^{2+}).

19. A cell according to claim 1, wherein said material comprises a salt which can be vaporized or volatized into ions.

20. A cell according to claim 19, wherein said salt comprises one or more cations and at least one anion selected from the group consisting of halides, sulfates, phosphates, carbonates, hydroxide, and sulfides.

21. A cell according to claim 1, wherein said means for forming said gaseous transition catalyst from said material comprises at least one of heat, electron-beam energy, photon energy, acoustic energy, electric field, or magnetic field.

22. A cell according to claim 1, wherein said material is adapted to provide gaseous atoms, said means for forming said transition catalyst further comprising means for ionizing said gaseous atoms to form said gaseous transition catalyst.

23. A cell according to claim 1, further comprising means for heating said material, wherein said material is adapted to provide gaseous atom when said material is heated, and said means for forming said transition catalyst comprising means for ionizing said gaseous atoms.

24. A cell according to claim 1, wherein said material comprises a filament which when active forms said gaseous transition catalyst.

25. A cell according to claim 1, wherein said means for forming said gaseous transition catalyst comprises a filament and said material is coated on said filament.

26. A cell according to claim 11, wherein said material is adapted to provide gaseous atoms when heated, and said means for forming said transition catalyst comprising means for ionizing said gaseous atoms.

27. A cell according to claim 10, wherein said material comprises a salt which can be vaporized or volatized into ions.

28. A cell according to claim 1, further comprising a nonreactive gas wherein the power is controlled by controlling the amount of said nonreactive gas.

29. A cell according to claim 1, wherein said source of hydrogen atoms comprises a means for pyrolysis of hydrocarbons or water.

30. A cell according to claim 29, wherein said cell comprises an internal combustion engine cylinder.

31. A cell according to claim 1, further comprising a means for controlling a power output of said cell, said power output controlling means comprising means for controlling the amount of said gaseous transition catalyst or said hydrogen atoms.

32. A cell according to claim 31, wherein said means for controlling the amount of said gaseous transition catalyst comprises means for controlling the temperature of said cell, wherein said material is adapted to have a vapor pressure dependent upon the temperature of said cell.

33. A cell according to claim 10, further comprising means for controlling a power output of said cell, said power output controlling means comprising means for controlling the temperature in said boat or

container, wherein said material is adapted to have a vapor pressure dependent upon the temperature of said boat or container.

34. A cell according to claim 31, wherein the amount of said hydrogen atoms is controlled by controlling the flow of hydrogen atoms from said hydrogen atom source.

35. A cell according to claim 5, further comprising a means for controlling a power output of said cell, said power output controlling means comprising means:

for controlling the flow of said hydrogen containing gas over at least one of said hot filament, said tungsten capillary heated by electron bombardment, or said inductively coupled plasma flow tube; or

for controlling the power dissipated in said inductively coupled plasma flow tube; or

for controlling a temperature of said hot filament or said tungsten capillary heated by electron bombardment; or

for controlling the pressure of hydrogen and temperature of said hydride maintained under nonequilibrium conditions.

36. A cell according to claim 1, further comprising means for controlling a power output of said cell, said power output controlling means comprising means for monitoring the quantity of said released energy.

37. A cell according to claim 1, further comprising means for controlling a power output of said cell, said power output

controlling means comprising a computerized monitoring and control system which monitors at least one of a thermistor, spectrometer, or gas chromatograph.

38. A method of extracting energy from hydrogen atoms comprising the steps of:

volatizing a material to form a gaseous transition catalyst;

providing hydrogen atoms; and

contacting said gaseous transition catalyst with said hydrogen atoms under conditions whereby said hydrogen atoms undergo a transition to an energy state lower than n=1 and energy is released from said hydrogen atoms, wherein n is the energy state of an electron in a free hydrogen atom and said gaseous transition catalyst is a catalyst for catalyzing the transition of hydrogen to an energy state lower than n=1.

39. A method according to claim 38, wherein said step of providing hydrogen atoms comprises the step of disassociating a hydrogen containing gas into hydrogen atoms.

40. A method according to claim 38, wherein said step of providing hydrogen atoms comprises at least one of passing a hydrogen containing gas over a hot filament, passing a hydrogen containing gas over a hot grid, passing a hydrogen containing gas through a tungsten capillary heated by electron bombardment to 1800-2000 K, or maintaining a hydride under nonequilibrium conditions, or passing a hydrogen containing gas through an inductively coupled plasma flow tube.

41. A method according to claim 38, wherein said step of providing hydrogen atoms comprises contacting a hydrogen containing gas with a second catalyst for disassociating said hydrogen containing gas stream into free hydrogen atoms.

42. A method according to claim 38, wherein said gaseous transition catalyst absorbs a multiple of about 27 eV from said hydrogen when said hydrogen atoms undergo said transition to a lower energy state.

43. A method according to claim 38, wherein said gaseous transition catalyst is adapted to have a resonant absorption with the energy released by said hydrogen atoms when said hydrogen atoms undergo said transition to a lower energy state.

44. A method according to claim 38, further comprising the steps of conducting said method in a cell comprising a vessel having the capability of containing a vacuum or pressure greater than atmospheric.

45. A method according to claim 38, further comprising the step of controlling a power output of said cell.

46. A method according to claim 45, wherein said step of controlling a power output of said cell includes controlling a flow of hydrogen atoms into said cell.

47. A method according to claim 38, further comprising the step of absorbing said released energy.

48. A method according to claim 38, further comprising the step of removing molecular hydrogen having an energy state lower than n=1.

49. A method according to claim 38, wherein the step of volatizing a material to form a gaseous transition catalyst comprises the steps of volatizing said material to form gaseous atoms and ionizing said gaseous atoms.

50. A method of making hydrinos comprising the steps of:

volatizing a material to form a gaseous transition catalyst;

forming hydrogen atoms; and

contacting said gaseous transition catalyst with said hydrogen atoms under conditions whereby said hydrogen atoms undergo a transition to an energy state lower than n=1 and energy is released from said hydrogen atoms to thereby form said hydrinos, wherein n is the energy state of an electron in a free hydrogen atom and said gaseous transition catalyst is a catalyst for catalyzing the transition of hydrogen to an energy state lower than n=1.

51. A method according to claim 50, further comprising the steps of collecting and purifying said hydrinos.